

**AMENDMENT TO THE CLAIMS**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**LISTING OF CLAIMS**

1. (cancelled)

2. (cancelled)

3. (currently amended) A method of gauging entities in an image ~~The method according to Claim 1 wherein the step of automatically configuring sub-models further comprises~~ comprising the steps of:
- constructing a model data structure;
  - identifying a set of gauge entities in said model;
  - automatically configuring sub-models according to the stability of features in said sub-models for computing position of each of said gauge entities by:
    - defining a set of regions for each gauge entity;
    - assessing each region for stable reference features;
    - selecting a best region for each gauge entity; and
    - training a sub-model representing each feature that exceeds a predetermined stability threshold within each of said best regions regions;
  - locating said sub-models in said image;
  - computing positions of each of said gauge entities by reference to locations of located sub-models; and
  - determining the spatial relationship between said gauge entities.
4. (original) The method according to claim 3 wherein the step of assessing each region further comprises the steps of:

segmenting each region into contiguous portions containing features;

mathematically assessing the stability of each portion; and

assessing the stability of each region according to the stability of portions within its respective region that exceed a predetermined stability threshold.

5. (original) The method according to claim 4 wherein the step of mathematically assessing the stability of each portion further comprises the steps of:

selecting degrees of freedom required to compute the spatial relationship of particular gauge entities with respect to the respective feature; and

invoking an alignment tool to compute the stability of each feature for determining the spatial relationship of said gauge entity with respect to said respective feature and said degrees of freedom.

6. (original) The method according to claim 4 wherein the step of mathematically assessing the stability of each portion further comprises the steps of:

constructing a portion stability matrix for each portion;

computing a condition number for said matrix; and

determining the stability of each portion according to said condition number.

7. (currently amended) A method of gauging entities in an image comprising the steps of:

constructing a model data structure;

identifying a set of gauge entities in said model;

automatically configuring sub-models according to the stability of features in said sub-models for computing position of each of said gauge entities;

locating said sub-models in said image;

computing positions of each of said gauge entities by reference to locations of located sub-models ~~The method according to claim 1 wherein the step of computing positions of each of said gauge entities further comprises a step of determining locations of said gauge entities by interpolation; and~~

determining the spatial relationship between said gauge entities.

8. (original) The method according to claim 7 wherein said interpolation is performed with reference to said located sub-models.

9. (cancelled)

10. (cancelled)

11. (currently amended) An apparatus for gauging entities in an image according to claim 9 wherein said image analysis system automatically configures sub-models by comprising:

an image acquisition device; and

an image analysis system in communication with said image acquisition device wherein said image analysis system operates on an acquired image to determine spatial relationships between gauge entities by:

automatically configuring sub-models according to stability of features in said sub-models for computing position of each of said gauge entities by:

defining a set of regions for each gauge entity;

assessing each region for stable reference features;

selecting a best region for each gauge entity; and  
training a sub-model representing each feature that  
exceeds a predetermined stability threshold within  
each of said ~~best-regions~~ regions;

locating sub-models in said image; and

computing positions of said gauge entities by reference to  
locations of located sub-models.

12. (currently amended) The ~~An~~ apparatus according to claim 11 wherein  
said image analysis system assesses each region by:

segmenting each region into contiguous portions containing  
features;

mathematically assessing the stability of each portion; and

assessing the stability of each region according to the stability of  
portions within its respective region that exceeds a predetermined  
stability threshold.

13. (currently amended) The ~~An~~ apparatus according to claim 12 wherein  
said image analysis system mathematically asses the stability of  
each portion by:

selecting degrees of freedom required to compute the spatial  
relationship of particular gauge entities with respect to the  
respective feature; and

invoking an alignment tool to compute the stability of each feature  
for determining the spatial relationship of said gauge entry with  
respect to said respective feature and said degrees of freedom.

14. (original) The apparatus according to claim 12 wherein said image  
analysis system mathematically assesses the stability of each  
portion by:

constructing a portion stability matrix for each portion;

computing a condition number for said matrix; and  
determining the stability of each portion according to said  
condition number.

15. (cancelled)

16. (original) An apparatus for gauging entities in an image comprising  
according to claim 15 wherein said means for analyzing said image  
assesses each region by:

means for acquiring an image; and

means for analyzing said image in communication with said means  
for acquiring an image wherein said means for analyzing said  
image operates on an acquired image to determine spatial  
relationships between gauge entities by:

automatically configuring sub-models according to stability  
of features in said sub-models for computing position of  
each of said gauge entities, by:

defining a set of regions for each gauge entity;

segmenting each region into contiguous portions  
containing features;

mathematically assessing the stability of each  
portion; and

assessing the stability of each region according to  
the stability of portions within its respective region  
that exceeds a predetermined stability ~~threshold~~  
threshold;

locating sub-models in said image; and

computing positions of said gauge entities by reference to  
locations of located sub-models.

17. (currently amended) The ~~An~~ apparatus according to claim 16 wherein said means for analyzing said image mathematically ~~assess~~ assesses the stability of each portion by:
- selecting degrees of freedom required to compute the spatial relationship of particular gauge entities with respect to the respective feature; and
  - invoking an alignment tool to compute the stability of each feature for determining the spatial relationship of said gauge entity with respect to said respective feature and said degrees of freedom.
18. (original) The apparatus according to claim 16 wherein said means for analyzing said image mathematically assesses the stability of each portion by:
- constructing a portion stability matrix for each portion;
  - computing a condition number for said matrix; and
  - determining the stability of each portion according to said condition number.